

REMARKS

Claims 9-28 remain in this application.

Claims 9-11, 14-17, 20-24, 27 and 28 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,231,817 (*Sadler*) in view of U.S. Patent No. 3,679,509 (*Fielibert*) and further in view of U.S. Patent No. 3,381,441 (*Condo et al.*). Claims 12, 18 and 25 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Sadler* in view of *Fielibert* and further in view of U.S. Patent No. 5,347,795 (*Fukuda*). The Office Action again appears to rely upon *Sadler* for allegedly disclosing an operation jaw 30, with a flat surface, facing the seal zone, and a counter jaw 31, comprised of a curved surface 56, facing the seal zone, that transversely seals a package 99 filled with a liquid. However, the Office Action then states that *Sadler* does not disclose the use of a curved operation surface that is in the seal zone.

As discussed during the telephone interview on July 14, 2003, independent claims 9, 16 and 22 are all directed to novel combinations of features including a heat-sealing device comprising a seal jaw and a counter jaw both including an operation surface that faces and contacts the seal zone during transverse sealing under the liquid surface of the liquid food. The operation surface of the counter jaw includes removal/mixture means for removing from the seal zone seal prevention impurities that may remain in the seal zone, and/or mixing the seal prevention impurities, including the liquid food, with the plastic material that has been softened or melted. The operation surface of the seal jaw is a flat surface, and the removal/mixture means is provided on the operation surface of the counter jaw for removing from the seal zone seal prevention impurities. It is understood from a

reading of the specification, such as in paragraph [0006], that the seal jaw provides the energy necessary for heat-sealing the tube in a seal zone, with the removal/mixture means on the operation surface of the counter jaw being the same as, or equivalent to, the structure described in the specification such as a slope provided in the operation surface of the counter jaw, ridges continuously or discontinuously provided in the operation surface of the counter jaw, etc.

In contrast to the novel combinations of features claimed in independent claims 9, 16 and 22, none of the references cited in the Office Action disclose or suggest a heat-sealing device comprising a novel combination of features that include the seal jaw and the counter jaw both including an operation surface that faces and contacts the seal zone during transverse sealing under the liquid surface of the liquid food, the operation surface of the seal jaw being a flat surface, and including removal/mixture means on the operation surface of the counter jaw for removing from the seal zone seal prevention impurities. In *Sadler*, the jaw 31 of the transverse impulse sealer comprises an electrical impulse sealing element 49 that meets with a convex silicon backing pad 48 on jaw 31. Accordingly, the operation surface of the seal jaw 30 in *Sadler* is not a flat surface, but rather is a ridged surface as the result of the impulse sealing element 49. Accordingly, *Sadler* cannot realize the advantages achieved by providing the operation surface of the seal jaw as a flat surface, such as generation of a high frequency magnetic field in the seal jaw that is uniform and smooth when using high frequency induction heating, or ultrasonic heating, as described in the specification at paragraph [0042].

Fielibert discloses two heated jaws 9 and 11, wherein the temperature of the upper jaw 11 is 225°C, and a temperature of the lower jaw 9 is 200°C, as described at column 3, lines 19-23. Accordingly, *Fielibert* does not disclose a heat-sealing device comprising a novel combination of features that include the seal jaw and the counter jaw both including an operation surface that faces and contacts the seal zone during transverse sealing under the liquid surface of the liquid food, with the operation surface of the seal jaw being a flat surface, and including removal/mixture means on the operation surface of the counter jaw for removing from the seal zone seal prevention impurities.

Condo et al. does not overcome the above-noted deficiencies in *Sadler* and *Fielibert* since the horizontal welding jaws 21 and 22 in the sealing assembly 20 are both flat, and therefore do not include a removal/mixture means on the operation surface of the counter jaw for removing from the seal zone seal prevention impurities.

Similarly, in *Fukuda*, the sealing jaws 20 are both flat. *Fukuda* therefore does not overcome the above-noted deficiencies in *Sadler*, *Fielibert* and *Condo et al.*.

Konno also does not overcome the above-noted deficiencies in *Sadler*, *Fielibert*, *Condo et al.* and *Fukuda*, since *Konno* discloses that dollies 31a and 32a are flat at their surfaces opposed to the heat sealing jaw 15b. First and second induction heating bodies 35 and 36 are provided with projections 35a and 36a opposed to the flat counter jaw surfaces of dollies 31a and 32a.

Accordingly, Applicant submits that none of the above-discussed references disclose or suggest a heat-sealing device comprising a novel combination of features that includes the seal jaw and the counter jaw both including an operation surface that faces and contacts

the seal zone during transverse sealing under the liquid surface of the liquid food, the operation surface of the seal jaw being a flat surface, and including removal/mixture means on the operation surface of the counter jaw for removing from the seal zone seal prevention impurities. Applicant therefore submits that independent claims 9, 16 and 22 are novel and non-obvious in view of *Sadler, Fielibert, Condo et al., Fukuda and Konno*, whether the references are considered alone or in combination. Withdrawal of all rejections under 35 U.S.C. §103 is therefore respectfully requested.

Prompt issuance of a Notice of Allowance is earnestly solicited. In the event any questions arise regarding this communication or the application in general, please contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

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Date: January 9, 2004

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